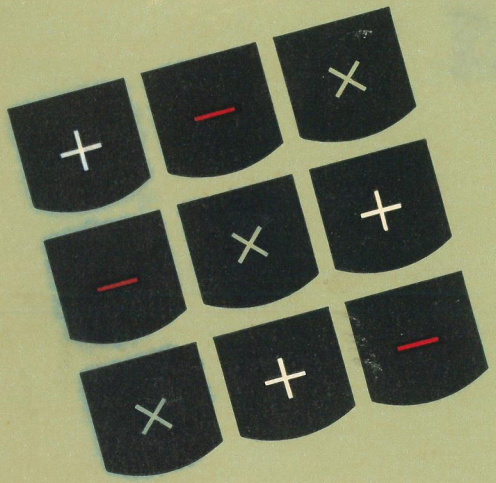
ADDO

ADDO-X



DIRECTIONS FOR THE USE OF ADDO-X MODEL 152

Printed in Sweden by STENSTRÖM & BARTELSON, MALMÖ

RA 2405/57E

ADDO-X

Model 152, a printing electric economy model that adds, subtracts, multiplies, sub-totals, totals and repeats numbers.

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Built into the new Addo-X are the lessons learned in more than forty years of making calculating machines. The world-famous basic design has been developed into a modern, handsome machine — perfected in form, finish and function — an efficient assistant ready to work long and hard.

Technically, the machine has many new and interesting features. It prints its figures as an accountant wants them — all the debit entries in black, all the credit entries in red. The new typographic characters possess striking clarity and crispness. After each total, the machine automatically moves the tape an extra step forward. Each calculation stands out by itself, giving "relief" to the tape and making it easier to read.

The new Addo-X works with more speed and less noise. Beneath the soundinsulated cover the precision-built mechanism, resting on elastic rubber pads, gives smooth, even running. The new asynchronous motor has suppressors to prevent interference with radio, TV and radar.

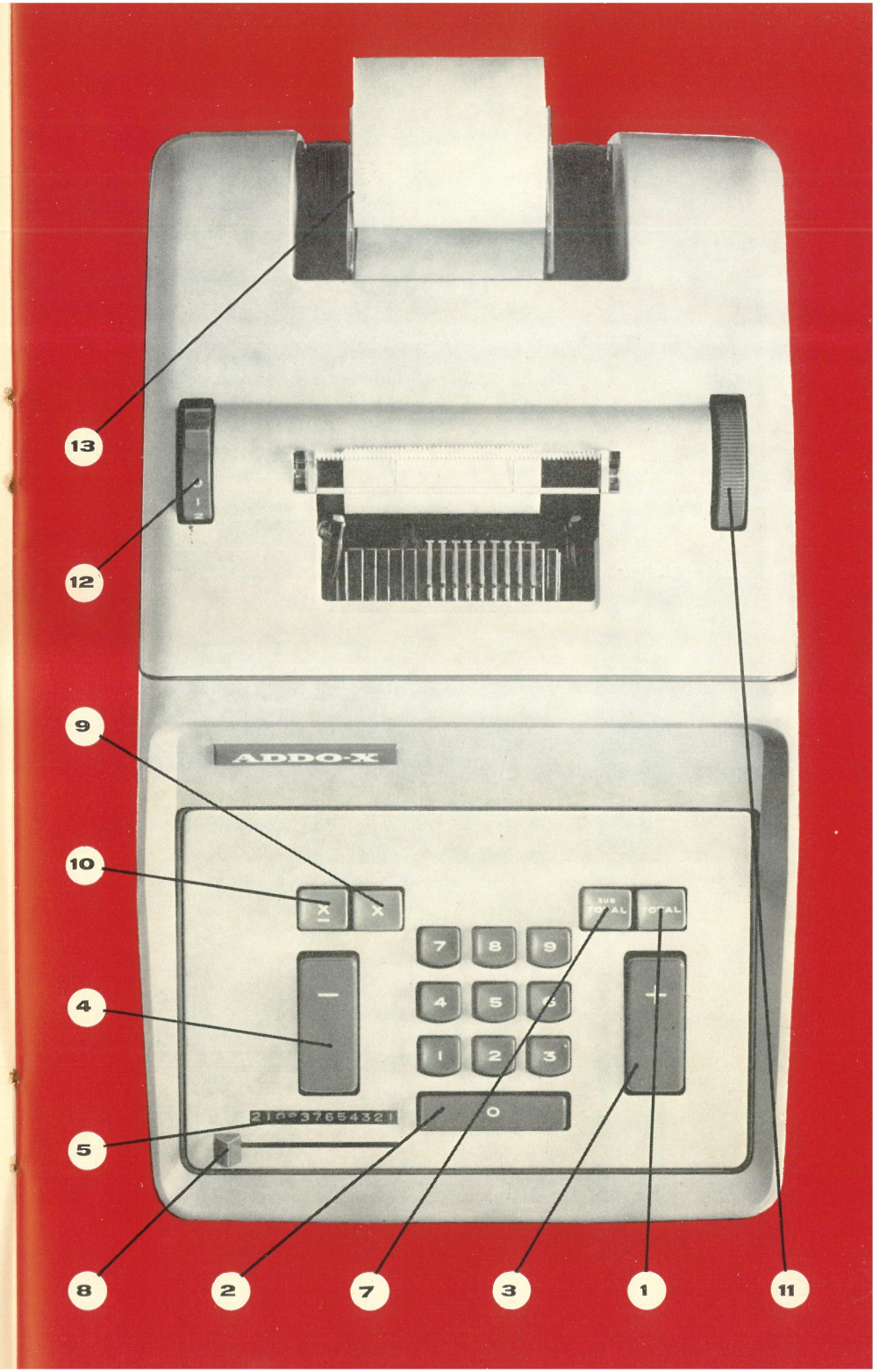
The symmetrical keyboard is built low and concentrated. Your hand — right or left — has a restful position to work in, with small finger movements reaching any and every key. The newly designed key mechanism achieves perfection of touch. You can go on calculating by the hour without feeling tired. Due to the key interlock, which prevents depressing more than one key at a time, you will get more accurate results. An Addo-X unites speed with safety!

Other advantages include the exclusive single-function principle — one key, one function — and an automatic signal for credit balance.

Self-adjusting guides enable you to use rolls of any width up to 3½" and to change them in seconds. Elimination of ribbon covers has made changing ribbons still easier.

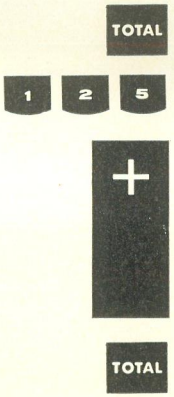
Every machine is painstakingly tested — first a robot check, then a manual check. Thoroughness in this respect, combined with Swedish quality steel and Swedish precision engineering, gives Addo-X machines their unexcelled technical dependability.

ADDO — symbol of quality the world over for modern office machines.



1 Setting

Check that the register is cleared before beginning a new operation, by depressing the Total Key (1). Every operation should begin with the symbol * on the tape.
The numbers are set by using the Numeral Keys (2), one digit at a time in the same order in which they are read, after which the Plus Key (3) or the Minus Key (4) is depressed.
The Digit Indicator (5) shows the number of digits set.



2 Addition

Ex.: 125+25=150

```
                *
          1.2 5
            2 5
          1.5 0*
```

1. Clear the machine
2. Set the number 125 and depress the Plus Key (3)
3. Set the number 25 and depress the Plus Key (3)
4. Depress the Total Key (1)

Note. All positive entries are printed in black.

Examples:

```
    *           *           *           *
1.2 3       1.4 7       1 0.2 5     1 5 2.0 3
4.5 6       2.5 8       2 0.3 6       7 4.0 9
7.8 9       3.6 9       3 0.1 2         1.2 3
1 3.6 8*    7.7 4*      6 0.7 3*    2 2 7.3 5*
```

3 Subtraction

Ex.: 125—25=100

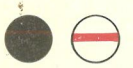
```
                *
          1.2 5
            2 5-
          1.0 0*
```

1. Clear the machine
2. Set the number 125 and depress the Plus Key (3)
3. Set the number 25 and depress the Minus Key (4)
4. Depress the Total Key (1)

Note. All negative entries are printed in red.

Examples:

```
    *           *           *           *
7.3 2       1 8.5 6     9 6.3 0     7.4 1-
3.0 5-      1.0 4-        2.0 5-    8 5.2 0
4.2 7*      1 7.5 2*      1.0 4-      8.5 2-
                        9 3.2 1*    6 9.2 7*
```



4 Negative calculation

If a larger number is subtracted from a smaller one, the complement of the negative answer is printed on the tape, preceded by a row of 9's. To obtain the correct answer, the complement number must be set **in full** with the Numeral Keys, the Minus Key depressed and the new total registered.

Ex.: 25—125= —100

```
                *
            2 5
          1.2 5-
9 9 9.9 9 9.0 0*

9 9 9.9 9 9.0 0-
          1.0 0*
```

1. Clear the machine
2. Set the number 25 and depress the Plus Key (3)
3. Set the number 125 and depress the Minus Key (4)
4. Depress the Total Key (1)
5. Set the total (in this case 99999900)
6. Depress the Minus Key (4)
7. Depress the Total Key

Examples:

```
      *           *           *           *
    3.0 5       1.0 4       9 6.3 0-    7.4 1
  7.3 2-      1 8.5 6-      2.0 5       8 5.2 0-
9 9 9.9 9 5.7 3* 9 9 9.9 8 2.4 8-     8.5 2
                  1 7.5 2*  9 9 9.9 0 6.7 9*  9 9 9.9 3 0.7 3*
9 9 9.9 9 5.7 3-  9 9 9.9 8 2.4 8*  9 9 9.9 0 6.7 9- 9 9 9.9 3 0.7 3-
    4.2 7*                          9 3.2 1*    6 9.2 7*
```

5 Sub-Total

When the Sub-Total Key (7) is depressed, the machine prints the total of the numbers previously registered, without clearing the register. The Sub-Total is indicated on the tape by the symbol ⌑.
Ex.:

	25
	+ 15
Sub-Total	= 40
	+ 95
	— 35
Total	= 100

1. Clear the machine
2. Set the number 25 and depress the Plus Key
3. Set the number 15 and depress the Plus Key
4. Depress the Sub-Total Key (7)
5. Set the number 95 and depress the Plus Key
6. Set the number 35 and depress the Minus Key
7. Depress the Total Key

```
      *
  2 5
  1 5
  4 0⌑
  9 5
  3 5-
1.0 0*
```

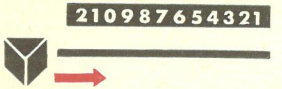
Examples:

	7036
	+ 84913
Sub-Total	= 91949
	— 407
	— 19
Total	= 91523

```
          *
    7 0.3 6
  8 4 9.1 3
  9 1 9.4 9⌑
      4.0 7-
        1 9-
  9 1 5.2 3*
```

	64380
+	3719
—	2058
Sub-Total =	66041
+	915820
—	123641
—	602583
Sub-Total =	255637
+	35678
+	9685
Total =	301000

```
          *
  6 4 3.8 0
    3 7.1 9
    2 0.5 8-
  6 6 0.4 1⌑
9.1 5 8.2 0
1.2 3 6.4 1-
6.0 2 5.8 3-
2.5 5 6.3 7⌑
  3 5 6.7 8
    9 6.8 5
3.0 1 0.0 0*
```



```
      *
  4.7 5
  4.7 5
  4.7 5
1 4.2 5*
```

```
      *
1 6.7 5
  2.2 5-
  2.2 5-
  2.2 5-
  2.2 5-
  7.7 5*
```

6 Correction

A number, incorrectly set on the key-board, is eliminated by pushing the Correction Key (8) completely over to the right.
(Correction can also be achieved by depressing the Sub-Total Key.)

7 Repeated Addition

Ex.: 475+475+475=1425

1. Clear the machine
2. Set the number 475 and keep the Repeat Key (Multiplication Key) (9) depressed until the number has been printed three times
3. Depress the Total Key

Examples:
536+536+536+536=2144
5691+5691+5691+5691+5691=28455

```
      *
  5.3 6
  5.3 6
  5.3 6
  5.3 6
2 1.4 4*
```

```
          *
    5 6.9 1
    5 6.9 1
    5 6.9 1
    5 6.9 1
    5 6.9 1
  2 8 4.5 5*
```

8 Repeated Subtraction

Ex.: 1675—225—225—225—225=775

1. Clear the machine
2. Set the number 1675 and depress the Plus Key
3. Set the number 225 and keep the Repeat Subtract Key (Minus Multiplication Key) (10) depressed until the number has been printed four times
4. Depress the Total Key

Examples:

7415—168—168—168—168—168=6575
8692—217—217—217—217—217=7607

```
        *                    *

7 4.1 5              8 6.9 2
  1.6 8-               2.1 7-
  1.6 8-               2.1 7-
  1.6 8-               2.1 7-
  1.6 8-               2.1 7-
  1.6 8-               2.1 7-
6 5.7 5*             7 6.0 7*
```

9 Multiplication

Multiplication is performed in the same way as repeated addition.

Ex.: 525×3=1575

1. Clear the machine
2. Set the multiplicand 525
3. Keep the Repeat Key (9) depressed until the number has been printed three times.
4. Depress the Total Key

If the multiplier contains more than one digit, tabulate between each part-multiplication (units, tens, hundreds etc.) by depressing the 0 Key.

```
      *
  5.2 5
  5.2 5
  5.2 5
1 5.7 5*
```

Ex.: 675×123=83025

1. Clear the machine
2. Set the number 675
3. Keep the Repeat Key (9) depressed until the number has been printed three times
4. Depress the 0 Key (Tabulating to tens)
5. Keep the Repeat Key depressed until the number has been printed twice
6. Depress the 0 Key (Tabulating to hundreds)
7. Keep the Repeat Key depressed until the number has been printed once
8. Depress the Total Key

```
        *
    6.7 5
    6.7 5
    6.7 5
  6 7.5 0
  6 7.5 0
6 7 5.0 0
8 3 0.2 5*
```


As can be seen from the example, **the product is given directly** without use of Correction Key. In other words the key-board is cleared completely and automatically when the Total Key is depressed.

Note. The first step in the multiplication is done by using the unit digit of the multiplier (just as when multiplying using pen and paper).

Examples:

83×21=1743 6140× 30=184200
578×34=19652 836×254=212344

If two or more consecutive multiplications occur and the sum of the products only is required, it is necessary for the operator to clear the key-board. This is done by depressing the Sub-Total Key after each completed multiplication.

Ex.: (215×13)+(7325×234)=1716845

1. Clear the machine
2. Multiply 215 by 13
3. Depress the Sub-Total Key
4. Multiply 7325 by 234
5. Depress the Total Key

```
          *
      2.1 5
      2.1 5
      2.1 5
    2 1.5 0
    2 7.9 5□
    7 3.2 5
    7 3.2 5
    7 3.2 5
    7 3.2 5
  7 3 2.5 0
  7 3 2.5 0
  7 3 2.5 0
7.3 2 5.0 0
7.3 2 5.0 0
1 7.1 6 8.4 5*
```

```
          *
    4.2 1
    4.2 1
4 2.1 0
5 0.5 2□
      4 3
      4 3
      4 3
      4 3
      4 3
      4 3
    4.3 0
5 7.4 0□
      9 8
      9 8
      9 8
      9 8
6 1.3 2*
```

Ex.: (421×12)+(43×16)+(98×4)=6132

10 Short- cut multiplication

Using the short cut method of multiplication allows fewer operations when multiplying. This method is applicable when the **multiplier contains one or more digits greater than 5.**

When multiplying the method used involves a combination of addition and subtraction thereby reducing the number of operations. The basis of the system is that: 9=10—1; 8=10—2; 7=10—3; 6=10—4.

Consequently, if a number is to be multiplied by 7, it is first multiplied by 10 and after this the number multiplied by 3 is subtracted from the answer.

However, when working with an adding machine one first subtracts ("minus-multiply") and then adds ("plus-multiply").

Ex.: 125×7=875

1. Clear the machine
2. Set the number 125
3. "Minus-multiply" by 3 [Repeat Subtract Key (10)]
4. Tabulate (0 Key)
5. Multiply by 1 [Repeat Key (9)]
6. Depress the Total Key

```
        *
  1.2 5 -
  1.2 5 -
  1.2 5 -
1 2.5 0
  8.7 5*
```

When a number is to be multiplied by for example 37, it is multiplied instead by 40 and then the number multiplied by 3 is subtracted from this.

When the adding machine is used, the subtraction is performed first and the multiplication afterwards.

Ex.: 125×37=4625

1. Clear the machine
2. Set the number 125
3. "Minus-multiply" by 3 (Repeat Subtract Key)
4. Tabulate (0 Key)

```
        *
  1.2 5 -
  1.2 5 -
  1.2 5 -
1 2.5 0
1 2.5 0
1 2.5 0
1 2.5 0
4 6.2 5*
```


5. Multiply by 4
6. Depress the Total Key

```
        *
  1.2 5 -
  1.2 5 -
 12.5 0 -
1 2.5 0 0
1 1 0.0 0*
```

When a number is to be multiplied by for example 88, it is multiplied instead by 100 and then the number is subtracted 12 times from this.

Ex.: 125×88=11000

1. Clear the machine
2. Set the number 125
3. "Minus-multiply" by 2
4. Tabulate
5. "Minus-multiply" by 1
6. Tabulate
7. Multiply by 1
8. Depress the Total Key

When multiplying a number by for example 728 (where two of the digits which are greater than five are separated by a digit which is less than six) the number is divided into two groups, 7 and 28. When computing, 28 is conceived as 30—2, and 7 as 10—3. See example.

```
        *
  15.5 5 -
  15.5 5 -
 1 55.5 0
 1 55.5 0
 1 55.5 0
1.5 5 5.0 0 -
1.5 5 5.0 0 -
1.5 5 5.0 0 -
1 5.5 5 0.0 0
1 1.3 2 0.4 0*
```

Ex.: 1555×728=1132040

1. Clear the machine
2. Set the number 1555
3. "Minus-multiply" by 2
4. Tabulate
5. Multiply by 3
6. Tabulate
7. "Minus-multiply" by 3
8. Tabulate
9. Multiply by 1
10. Depress the Total Key

Rules to Remember:

1. "Minus-multiply" for each digit in the multiplier which is larger than 5, by the difference between 10 and the digit in question, or by

the difference between 9 and the digit in question when the previous number has also been "minus-multiplied".

2. "Plus-multiply" by each digit in the multiplier which is smaller than 6 in the usual manner, or once more than this digit indicates when the number has been "minus-multiplied" in the previous decade.

Note If the above difference is 0 (9—9=0), tabulate one step further and consider this operation as "minus-multiplication".

Examples:

26×8 =208	895×159 =142305
521×19=9899	188×999 =187812
526×39=20514	5765×2846=16407190
122×87=10614	783×109 =85347

11 Paper feed

This takes place automatically, but the tape can be moved in either direction by means of the Platen Knob (11).

12 Line spacing

0
1
2

Single or double line spacing can be selected by placing the lever (12) in positions 1 or 2 respectively.

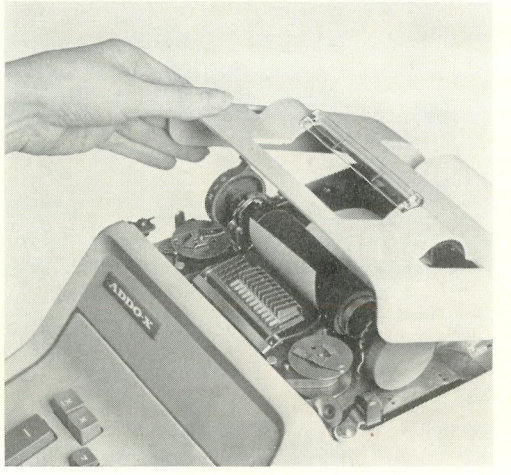
13 Paper release

0
1
2

If the tape is not straight, it can be adjusted when the lever (12) is placed in the 0-position. Remember to return the lever to its original position.

14 Opening the top cover

When a paper roll or ribbon is changed, the upper section of the cover must be opened. The cover is lifted up us shown in illustration.

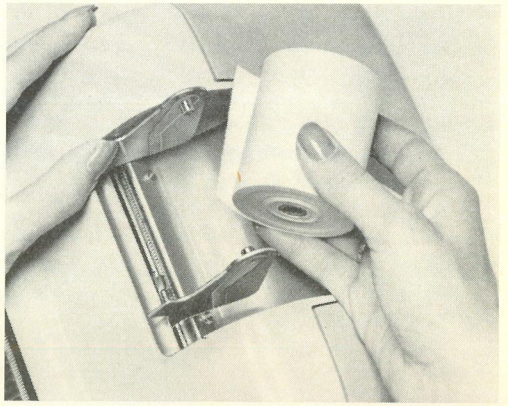


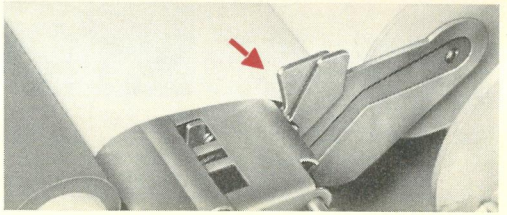
15 Change of Paper Roll

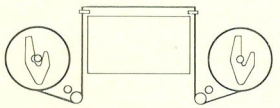
Push the left spring-loaded paper guide (13) as far as possible to the left and remove the roll. Place the new roll between both the paper guides, the pins of which will grip the centre holes of the roll (see illustration next page). Open the upper section of the cover and lead forward about 25 cm (10″) of tape. Push the tape under the platen and feed it forward by using the Platen Knob. Lead the tape further under the transparent tear-off bar. Tighten the tape and replace the cover.

Rolls up to a width of 70 mm (2¾″) can be used without any special adjustment. It is, however, possible to use rolls of greater width. By means

of exerting a light pressure on the lever (see illustration below) the right paper guide can be freed and moved further to the right so that rolls up to a width of 88 mm (3½″) can be used.

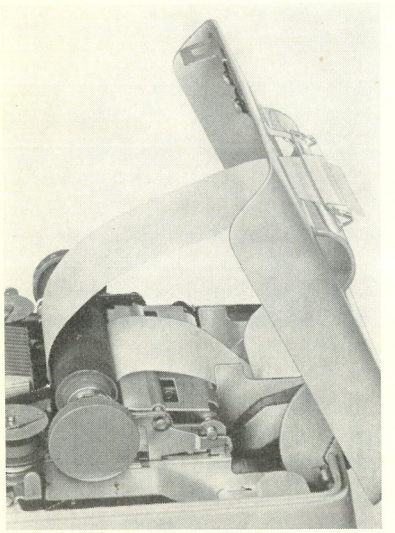


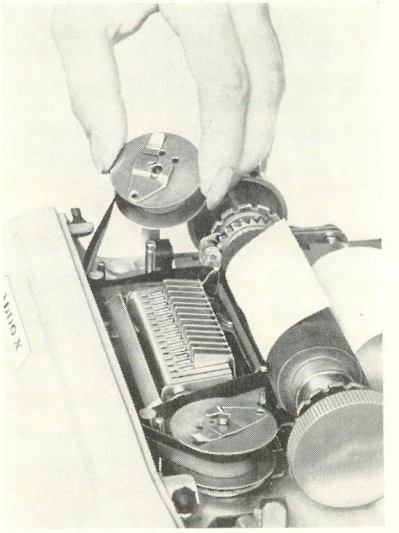




16 Change of ribbon

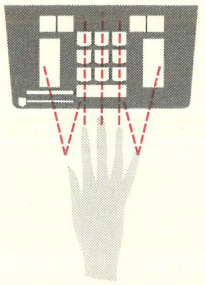
Open the top cover. Push the spool locks aside (see illustration) and remove both the spools. As the ribbon is always supplied on left hand spools, it is the old left hand spool which should be changed. The old ribbon is released from the right hand spool and the new ribbon is attached. Replace the spools in position and make sure that the ribbon is fed through the ribbon guides and around the pivots (see illustration).
Secure the spools by means of the locks and replace the cover. The ribbon will reverse automatically.





17 Moving the machine

If the machine is to be moved on the working table, the front part of the machine is lifted. (There is a grip on the under side of the base which is shaped to fit the fingers.)



PRACTICE MAKES PERFECT

THE TOUCH METHOD

The Addo-X machine is "an accurate and fast" adding machine, which makes calculation work easy. Regular practice, with the touch method, quickly leads to 100 % efficiency and a calm, even, working rhythm. The illustration shows the principle when using the touch method. The initial position is always with the index, middle and ring fingers resting on keys 4, 5, and 6 respectively ("homekeys"). From these positions, the fingers can glide up or down to the required keys. The thumb is used to strike the 0 Key and the Minus Key. The little finger the Plus Key. Using the right or left hand is equally simple owing to the symmetry of the key-board.

After a short practice period using the following examples, the operator can find the correct keys automatically and can thus concentrate completely on the material. Sureness and speed come automatically after a further period of practice with similar examples.

Never leave an example before two correct answers at least have been obtained in succession.

*	*	*	*	*
56	12	78	1.23	1.07
54	23	89	4.56	1.08
46	32	98	7.89	1.09
64	21	87	1.47	4.07
45	10	88	2.58	4.08
65	13	79	3.69	4.09
55	31	87	3.21	3.07
46	14	90	6.54	3.08
66	42	79	9.87	3.09
44	20	89	1.32	6.07
60	21	97	4.65	6.04
50	15	80	7.98	6.01
40	32	70	1.74	6.08
56	23	88	2.85	6.09
54	32	99	3.96	7.03
801*	341*	1298*	6354*	6204*

*	*	*	*
6.52	45.89	58	792.83
6.18	65.42	45.67	204.50
4.38	87.50	125.00	3.819.44
9.13	12.50	49.87	1.154.25
7.19	65.00	12.35	15.66-
3.97	37.98	89	123.54-
5.82	16.73	36.25	2.35
6.39	58.45	758.65	12.78
1.47	38.19	5	51.83-
9.51	46.25	13.27	158.99
3.57	37.18	49.67	450.89-
2.22	46.20	98.00	245.87
8.88	25.00	13.54	325.87
9.53	80.00	89.00	987.31
2.84	75.36	75.50	11.26
87.60*	737.65*	64.64	452.23-
		59.53	85.21-
		57.51	159.63
		123.45	21.00-
		62.50	6.674.72*
		1.735.92*	

PRACTICAL PERCENTAGE COMPUTATIONS

1. a) How much is 21 % of 350?

$$\frac{21 \times 350}{100}$$

Method: Multiply 350 by 21 and move the decimal point two places to the left.

Answer: 73.50

*
3.50
35.00
35.00
73.50*

b) How much is left after taking 35 % from 124?

Guide: 65 % of 124 will be left.

$$\frac{65 \times 124}{100}$$

Method: Multiply 124 by 65 and move the decimal point two places to the left.

Answer: 80.60

*
1.24
1.24
1.24
1.24
1.24
12.40
12.40
12.40
12.40
12.40
12.40
80.60*

```
        *
    1.2 4
    1.2 4
    1.2 4
    1.2 4
    1.2 4
  1 2.4 0
  1 2.4 0
  1 2.4 0
1 2 4.0 0
1 6 7.4 0*
```

c) If 124 is to be increased by 35 %, what will be the new value?

Guide: The new value will be 135 % of the original (the original value is considered as 100 %)

$$\frac{135 \times 124}{100}$$

Method: Multiply 124 by 135 and move the decimal point two places to the left.

Answer: 167.40

```
        *
    3 5
  3.5 0
  3.5 0
  7.3 5*
```

2. a) How much is 350 % of 21?

$$\frac{350 \times 21}{100} = \frac{35 \times 21}{10}$$

Method: Multiply 35 by 21 and move the decimal point one place to the left.

Answer: 73.5

```
        *
    1.2 4
    1.2 4
    1.2 4
    1.2 4
    1.2 4
  1 2.4 0
  1 2.4 0
  1 2.4 0
  4 3.4 0□
1 2 4.0 0
1 6 7.4 0*
```

b) If 124 is to be increased by 35 %, what will be (a) the mark up and (b) the new total?

Guide: First compute the mark up in the normal manner but depress the Sub-Total Key instead of the Total Key. After this set the original total, increased by two noughts, with the Plus Key. The sub-total is the answer to the first question (a) and the final total gives the answer to the second question (b).

$$\frac{35 \times 124}{100}$$; 4340 (□)+12400

Answers: 43.40; 167.40

```
        *
  6 2.0 0
  6 2.0 0
1 2 4.0 0□
  1.2 4-
  1.2 4-
  1.2 4-
  1.2 4-
  1.2 4-
1 2.4 0-
1 2.4 0-
1 2.4 0-
8 0.6 0*
```

3. A) How much will two articles à $ 62.- with a 35 % discount cost?

Guide: Two noughts are added to 62 at the commencement of the problem as the price computation will be followed by the percentage computation.

b) The gross total is taken as the sub-total

c) The percentage computation is performed by using the Repeat Subtract Key

2×6200; 12400×(—35)

Answer: 80.60

B) In the invoice computation below, a percentage calculation is included. The computation can be thought of as either with 'percentage noughts' or without 'percentage noughts'.

Examine and compare both solutions.

4 articles à $ 2.41	9.64	
3 articles à $ 12.32	36.96	
2 articles à $ 4.23	8.46	
	55.06	
Discount 3 %		
	53.41	
Mark up	4.68	
	58.09	

```
        *
    2.4 1
    2.4 1
    2.4 1
    2.4 1
    9.6 4*

    1 2.3 2
    1 2.3 2
    1 2.3 2
    3 6.9 6*

      4.2 3
      4.2 3
      8.4 6*

  9 6 4.0 0
3.6 9 6.0 0
  8 4 6.0 0
5.5 0 6.0 0□
  5 5.0 6-
  5 5.0 6-
  5 5.0 6-
5.3 4 0.8 2□
  4 6 8.0 0
5.8 0 8.8 2*
```

```
        *
    2.4 1
    2.4 1
    2.4 1
    2.4 1
    9.6 4*

    1 2.3 2
    1 2.3 2
    1 2.3 2
    3 6.9 6*

      4.2 3
      4.2 3
      8.4 6*

    9.6 4
  3 6.9 6
    8.4 6
  5 5.0 6□
    5 5-
    5 5-
    5 5-
  5 3.4 1□
    4.6 8
  5 8.0 9*
```